

What is claimed is:

1. An electrode for a light-emitting semiconductor device, formed on a surface of a p-type GaN-base compound semiconductor, comprising a light-permeable electrode formed to come into contact with the surface of the semiconductor, and a wire-bonding electrode that is in electrical contact with the light-permeable electrode and is formed to come into partial contact with the surface of the semiconductor with at least a region in contact with the semiconductor having a higher contact resistance per unit area with respect to the semiconductor than a region of the light-permeable electrode in contact with the semiconductor.
2. The electrode according to claim 1, wherein the region of the wire-bonding electrode in contact with the semiconductor comprises at least one member selected from a group consisting of Tl, In, Mn, Ti, Al, Ag, Sn, AuBe, AuZn, AuMg, AlSi, TiSi and TiBe.
3. The electrode according to claim 1, wherein the region of the wire-bonding electrode in contact with the semiconductor comprises at least one member selected from a group consisting of Ti, Al and AuBe.
4. The electrode according to claim 1, wherein the region of the light-permeable electrode in contact with the semiconductor comprises one metal selected from a group consisting of Au, Pd, Pt, Ni and Cr.
5. The electrode according to claim 1, wherein the wire-bonding electrode has a multilayer structure in which a topmost layer is formed of Al or Au.
6. The electrode according to claim 1, wherein the light-permeable electrode comprises a first layer formed to come into contact with the surface of the semiconductor and comprising at least one member selected

from a group consisting of Au, Pt and Pd, and a second layer formed on the first layer and comprising a light-permeable metal oxide containing an oxide of at least one metal selected from a group consisting of Ni, Ti, Sn, Cr, Co, Zn, Cu, Mg and In.

7. The electrode according to claim 6, wherein the first layer is comprised of Au and the second layer is comprised of an oxide of Ni.

8. The electrode according to claim 6, wherein the second layer has an oxygen composition that gradually decreases from the second layer toward the first layer in a region near an interface between the second layer and the first layer.

9. The electrode according to claim 6, wherein the first layer contains a metal element which is a main component of the metal oxide constituting the second layer.

10. The electrode according to claims 1 to 5, wherein the light-permeable electrode is formed to overlay an upper surface of the wire-bonding electrode at a portion at which the wire-bonding electrode is disposed.

11. The electrode according to claims 6 to 9, wherein the light-permeable electrode is formed to overlay an upper surface of the wire-bonding electrode at a portion at which the wire-bonding electrode is disposed.

12. The electrode according to claim 10, wherein the light-permeable electrode is formed to overlay a periphery of the upper surface of the wire-bonding electrode.

13. The electrode according to claim 11, wherein the light-permeable electrode is formed to overlay a periphery of the upper surface of the wire-bonding electrode.

14. The electrode according to claim 10, wherein the light-permeable electrode is formed to cover an entire upper surface of the wire-bonding electrode.

15. The electrode according to claim 11, wherein the light-permeable electrode is formed to cover an entire upper surface of the wire-bonding electrode.

16. The electrode according to claim 11, wherein the first layer of the light-permeable electrode is exposed at the portion of the second layer, that overlays the wire-bonding electrode.

17. The electrode according to claim 16, wherein at least a part of the exposed portion of the first layer is laminated with Al or Au.

18. An electrode for a light-emitting semiconductor device, formed on a surface of a p-type GaN-base compound semiconductor, comprising a light-permeable electrode comprised of a first layer of Au formed to come into contact with the surface of the semiconductor, and a second layer of NiO formed on the first layer, and a wire-bonding electrode that is formed to be in electrical contact with the light-permeable electrode and in partial contact with the surface of the semiconductor, said wire-bonding electrode comprising a lamination of, from the semiconductor side, AuBe and Au, with the light-permeable electrode being formed to overlay an upper surface of the wire-bonding electrode at a portion at which the wire-bonding electrode is disposed.

19. The electrode according to claim 18, wherein the first layer of the light-permeable electrode is exposed at the portion of the second layer that overlays the wire-bonding electrode.